

MMP12321

3.5 TO 12.0 GHz COUGAR MIXERPAK DOUBLE-BALANCED MIXER

Typical Values

LO & RF	3.5 - 12.0 GHz
IF	DC - 3.0 GHz
Third Order I.P.	+12.0 dBm
Conversion Loss	5.0 dB
LO Drive (nominal)	+7.0 dBm
High Isolation (LO to RF)	40.0 dB
Cougar MixerPak - Seam Sealed Hermetic Package	

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3.5 - 12.0 GHz
DC - 3.0 GHz
+12.0 dBm
5.0 dB
+7.0 dBm
40.0 dB

SPECIFICATIONS*

Guaranteed
-55 to +85 °C

Parameter	Port	Frequency (GHz)	Typ. (dB)	Max. (dB)
SSB Conversion Loss and SSB Noise Figure	f_R	3.5 to 12.0	4.5	6.0
	f_L	3.5 to 12.0	4.5	6.0
	f_I	DC to 1.0	4.5	6.0
	f_R	3.5 to 12.0	7.0	8.0
	f_L	3.5 to 12.0	7.0	8.0
	f_I	1.0 to 3.0	7.0	8.0
Conversion Comp. Desensitization	f_R	Level = +5 dBm	—	1.0
	f_{R2}	Level = +3 dBm	—	1.0
Isolation			Typ. (dB)	Min. (dB)
	f_L at R	3.5 to 12.0	42	35
	f_L at I	8.0 to 12.0	42	32
	f_R at I	6.0 to 12.0	20	15
	f_L at I	3.5 to 8.0	32	25
	f_R at I	3.5 to 6.0	15	8
Third Order Intercept		LO = +7 dBm	+10 dBm	—

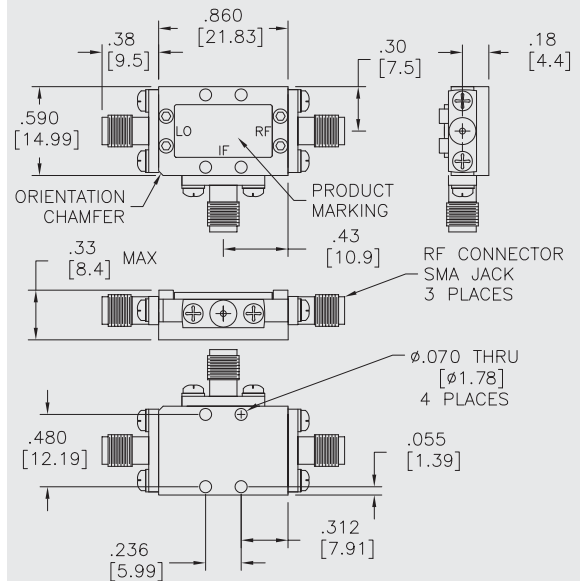
* Measured in a 50-ohm system with nominal LO drive of +7 dBm as a downconverter.

ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-65 to +150 °C
Peak RF Input Power All Ports	+22 dBm @ 25 °C derate to +17 dBm @ 100 °C

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Cougar MixerPak



Harmonic Intermodulation Products (single tone)

HARMONICS OF f_R	0	1	2	3	4	5
5	>100	>100	>100	>100	92	88
4	100	96	>100	>100	86	85
3	>100	>100	100	77	87	78
2	94	>100	99	74	80	73
1	74	79	61	53	64	79
0	72	76	58	50	62	79
5	68	43	51	42	67	67
4	67	45	51	42	64	66
3	5	0	23	37	40	47
2	4	0	23	39	40	51
1	5	21	33	26	27	
0	8	24	33	30	30	

F_R = 3500 MHz @ -10 dBm
 F_L @ +7 dBm

F_L = 3530 MHz
 F_L @ +10 dBm

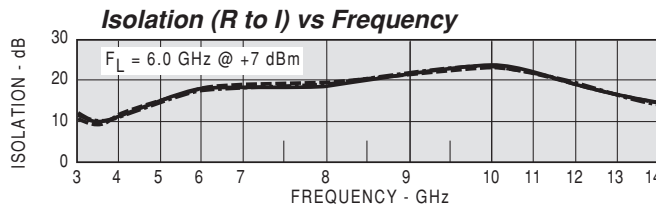
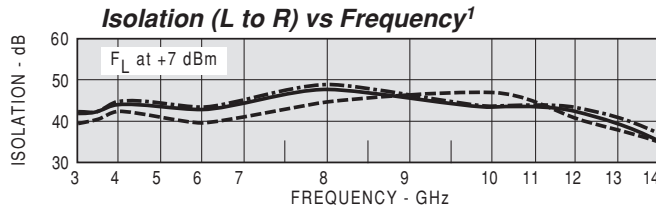
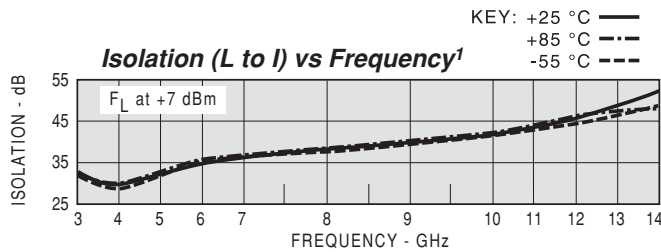
Harmonic Intermodulation Products (single tone)

HARMONICS OF f_R	0	1	2	3	4	5
5	96	>100	>100	>100	87	79
4	96	>100	94	>100	83	75
3	95	96	88	67	81	69
2	85	96	89	65	78	66
1	68	85	62	49	64	79
0	65	79	59	47	60	75
5	62	39	59	39	58	70
4	63	39	58	38	58	68
3	6	0	26	41	38	40
2	6	0	26	42	39	42
1	5	22	38	24	23	
0	7	24	38	27	26	

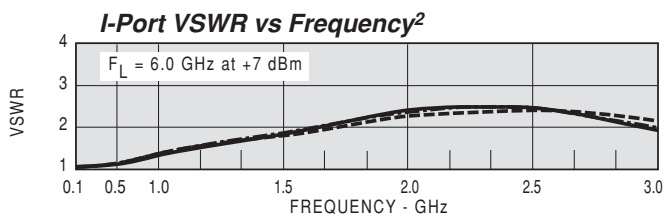
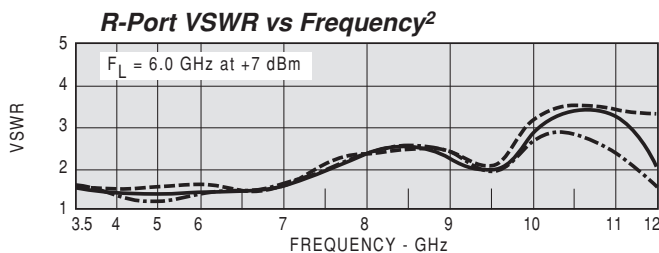
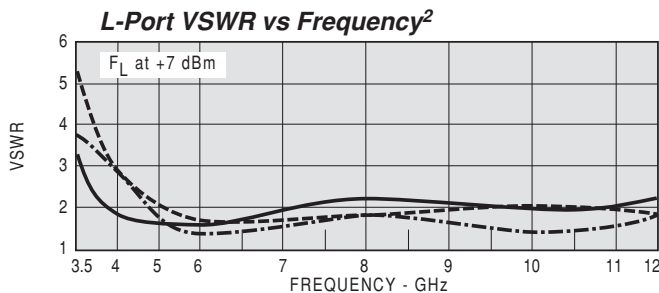
F_R = 4000 MHz @ -10 dBm
 F_L @ +7 dBm

F_L = 4030 MHz
 F_L @ +10 dBm

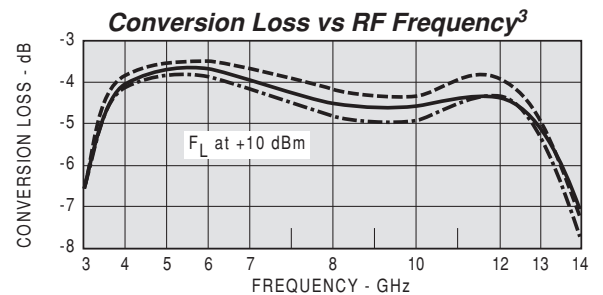
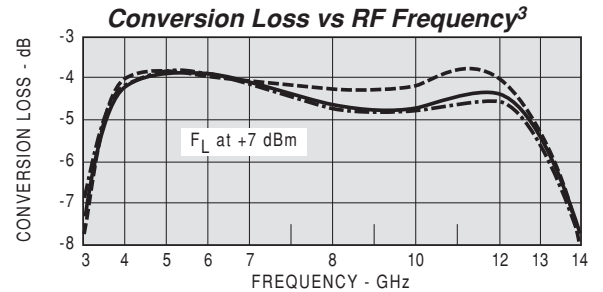
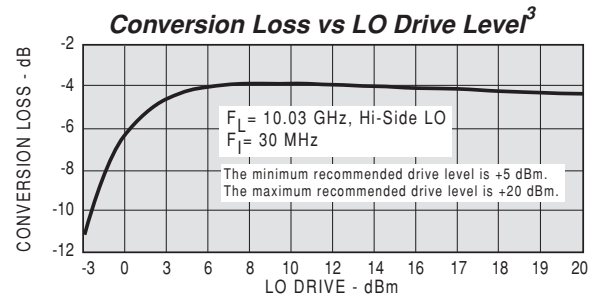
TYPICAL PERFORMANCE



¹ Level of the f_L signal fed through to the R- and I-ports with respect to the level of the f_L signal at the L-port.



² VSWR of the I- and R-ports in a 50-ohm system. Some variation in the R-port VSWR will occur as a function of the L-port frequency as shown above.



³ Conversion loss of the mixer when used in an SSB system. The frequency ordinate refers to the R-port (f_R) with f_I at 30 MHz.

